## LOCALIZED PLASMA POLARIMETRY, BASED ON MODE CONVERSION IN

## **TOKAMAKS: COULD IT BE REALIZED IN THE ITER PROJECT?**

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Phenomenon of linear modes conversion in the inhomogeneous plasma is widely known in electromagnetic theory. It was studied first in respect to solar corona [1,2] and later in the Earth's ionosphere [3]. Such a phenomenon, being applied to tokamak plasma, might form a basis for localized plasma polarimetry, using circular modes conversion in the vicinity of orthogonality point between the sounding beam and static magnet field.

Unfortunately, promising theoretical prerequisites, approved in Solar and Ionosphere plasma, have met strong practical limitations in tokamak plasma. Detailed analysis of the problem in respect to ITER plasma has shown that localized plasma polarimetry hardly can be realized in conditions the ITER project, because this kind of polarimetry requires super dense plasma with  $N_e>10^{17}$ cm<sup>-3</sup>, what is about 1000 times higher than project ITER envisages.

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- [2] V.V.Zheleznyakov and E.Ya.Zlotnik, Soviet Astronomy Journal AJ 7, 1964, 485
- [3] Yu.A.Kravtsov and O.N.Naida, Sov. Phys. JETP 44, 1976, 122